WHAT IS CLAIMED IS:

1.) An interactive performance interface for use with an audio system that generates at least one audio signal, said interactive performance interface including at least one performance mode comprising;

   interaction rate data generation functions for generating at least first and second interaction rate data responsive to user operation of first and second user-input control devices, and

10   at least one interactive control envelope means for synthesizing an interaction rate signal including attack data and release data responsive to said first and second interaction rate data,

   said interactive control envelope means including at least one attack latch for synthesizing said attack data and release data, according to at least one specification selected from the group consisting of, (i) said attack latch is activated responsive to a second state of said interaction rate data, preceded in time by a first state of said interaction rate data, (ii) said attack latch is deactivated responsive to a second state of said interaction

20   rate data, preceded in time by a first state of said interaction rate data, (iii) said attack latch is activated responsive to a state of said first interaction rate data, and subsequently deactivated responsive to a state of said second interaction rate data, (iv) said attack latch is activated responsive to a combination of a first state of said first interaction rate data and a first state of·said second interaction rate data, and subsequently deactivated responsive to a combination of a second state of said first interaction rate data, and a second state of said second interaction rate data,

30   whereby said audio signal at least initiates a phrase responsive to said interaction rate signal.

2) The interactive performance interface of claim 1, wherein said first and second interaction rate event data are selected from the group consisting of (i) logic data representing user operation of a control operator, (ii) selection data representing user

selection of notes using a note selection device (iii) first
on/last off data, (iv) 2nd note/1st note data, (v) new note/same
note data, (vi) first deflected/last released data, and (vii) new
operator/same operator data.

3.) The interactive performance interface of claim 1 that has at
least one characteristic selected from a group consisting of, (i)
data input to said generation functions is MIDI compatible data,
and (ii) said electronic audio system is MIDI compatible.

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4.) The interactive performance interface of claim 1, wherein said
interactive control interface is implemented in at least one
device selected from a group consisting of (i) a stand-alone
musical instrument, (ii) a stand-alone electro-mechanical device,
(iii) a machine-readable storage device for use with a host
system, (iv) a magnetic storage medium for use with a host system,
and (v) an optical storage medium for use with a host system.

5.) The interactive performance interface of claim 1 wherein said
20 interactive control envelope further includes at least one latch
selected from the group consisting of (i) a continuation latch for
synthesizing continuation data responsive at least in part to said
attack data, wherein said phrase is responsive to said
continuation data, (ii) a damp latch for synthesizing damping data
responsive at least in part to said release data wherein said
phrase is responsive to daid damping data, and (iii) a decay latch
for synthesizing decay data responsive at least in part to said
attack data, wherein said phrase is responsive to said decay data.

30 6.) The interactive performance interface of claim 1 that further
includes third interaction rate data, responsive to user operation
of a third user-input control device, wherein said attack latch is
further responsive to said third interaction rate data according
to at least one specification selected from the group consisting
of (i) said attack latch synthesizes attack data responsive to
said third interaction rate data, (ii) said attack latch

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synthesizes release data responsive to said third interaction rate data.

7.) The interactive performance interface of claim 1 wherein said attack data functions at least one way selected from the group consisting of, (i) said attack data latches a note selection, (ii) said attack data activates an audio rate signal, (iii) said attack data latches on an audio rate signal, (iv) said attack data latches a control operator selection, (v) said attack data
10   activates a control rate signal, (vi) said attack data latches on a control rate signal, (vii) said attack data activates a score sequence, (viii) said attack data latches on a score sequence loop, (ix) said attack data activates a mapping function, and (x) said attack data initializes phrase synthesis parameters.

8.) The interactive performance interface of claim 1 that further includes at least one control rate signal generation means for generating control rate signal data responsive to said interaction rate signal, wherein the rate of change of said control rate
20   signal data is variable responsive to at least one of (i) position value of a note selection, (ii) interval difference of a first and second note selection, (iii) position value of a control operator, and (iv) velocity of a control operator.

9.) The interactive performance interface of claim 1 that further includes a mixer means for merging control rate signal data, said mixer means including at least one means selected from the group consisting of (i) summing control rate signals, and (ii) accumulating interpolated control rate data.
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10.) The interactive performance interface of claim 1 that further includes a harmony-interval means for harmonizing control rate signal intervals including at least one means selected from the group consisting of (i) calculating interval data for said control rate signals by reference to an indexed array representing a

scale, and (ii) calcuating interval data for said control rate
signals by reference to a chord selected from a chord library.

11.) A method of providing an interactive performance interface
for an electronic audio system, comprising the steps of:
  (a) generating first and second interaction rate data responsive
to user operation of first and second user-input devices,
  (b) synthesizing an interaction rate signal, including at least
one step selected from the group consisting of (i) synthesizing
attack data responsive to a second state of said interaction rate
data, preceded in time by a first state of said interaction rate
data, (ii) synthesizing release data responsive to a second state
of said interaction rate data, preceded in time by a first state
of said interaction rate data, (iii) synthesizing attack data
responsive to a state of said first interaction rate data, and
subsequent release data responsive to a state of said second
interaction rate data, and (iv) synthesizing attack data
responsive to a first state of said first interaction rate data
combined with a first state of said second interaction rate data,
and subsequent release data responsive to a second state of said
first interaction rate data, combined with a second state of said
second interaction rate data,
  whereby said audio system provides at least one audio signal
responsive to said interaction rate signal.

12.) The method of claim 11 wherein at least one step selected
from the group consisting of (i) at step (a) first inputting MIDI
compatible data, and (ii) at step (b) last outputting MIDI
compatible data.

13.) The method of claim 11, wherein at least one of steps (a) and
(b) are carried out in a device selected from a group consisting
of (i) a stand-alone musical instrument, (ii) a stand-alone
electro-mechanical device, (iii) a computer system that reads
memory whereon is stored a routine that when executed by said
computer system executes at least said step.

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14.) The method of claim 11, wherein said method is embodied in at least one medium selected from the group consisting of (i) said method is stored on a machine-readable memory device for use with a host system, (ii) said method is stored on a magnetic storage medium, (iii) said method is stored on an optical storage medium, and (iv) said method is transferred as an electrical signal across a network.

15.) The method of claim 11, at step (a) said first and second
10 interaction rate data include logic data selected from a group consisting of (i) logic data representing user operation of a control operator, (ii) selection data representing user selections of notes with a note selection device, (iii) first on/last off data, (iv) 2nd note/1st note data, (v) new note/same note data, (vi) first deflected/last released data, and (vii) new operator/same operator data.

16.) The method of claim 11 wherein step (b) further includes the step of (i) synthesizing continuation data responsive at least in
20 part to said attack data, wherein said continuation data is included in said interaction rate signal, (ii) synthesizing damping data responsive at least in part to said release data wherein said dampling data is included in said interaction rate signal, and iii.) synthesizing decay data responsive at least in part to said attack data, wherein said decay data is included in said interaction rate signal.

17.) The method of claim 11 that further includes the steps of:
    (a) generating third interaction rate data responsive to user
30 operation of a third user-input device, and
    (b) at least one step selected from the group consisting of, (i) synthesizing attack data responsive to a state of said third interaction rate data, (ii) synthesizing release data responsive to a state of said third interaction rate data, (iii) synthesizing continuation data responsive to said attack data and a state of said third interaction rate data, (iv) synthesizing damping data

responsive to said release data and a state of said third interaction rate data, and (v) synthesizing decay data responsive to said attack data and a state of said third interaction rate data.

18.) The method of claim 11 that further includes at least one step selected from the group consisting of, (i) latching a note selection, (ii) activating an audio rate signal, (iii) latching on an audio rate signal, (iv) latching a control operator selection, 10 (v) activating a control rate signal, (vi) latching on a control rate signal, (vii) activating a score sequence, (viii) latching on a score sequence loop, (ix) activating a mapping function, and (x) initializing phrase synthesis parameters.

19.) The method of claim 11 that further includes the steps of:
  (a.) generating control rate signal data responsive to said interaction rate signal, and
  (b.) varying the rate of change of said control rate signal data responsive to at least one of (i) position value of a note 20 selection, (ii) interval difference of a first and second note selection, (iii) position value of a control operator, and (iv) velocity value of a control operator.

20.) The method of claim 11 that further includes the step of merging control rate signal data, said step comprising at least one step selected from the group consisting of (i) summing control rate signals, and (ii) accumulating interpolated control rate signal data.

30 21.) The method claim 11 that further includes the step of harmonizing control rate signal intervals, said step comprising at least one step selected from the group consisting of (i) calculating interval data by reference to an indexed array representing a scale, and (ii) calculating interval data by reference to a chord selected from a chord library.

22.) A method of synthesizing a phrase responsive to user
operation of a note selection device, comprising the steps of:

(a) generating first and second interaction rate data responsive
to first and second user interaction gestures operational of said
note selection device,

(b) synthesizing an interaction rate signal representing said
phrase, said interaction rate signal including interaction rate
data selected from the group consisting of (i) a sequence of
attack data responsive to a first change of states of said first
10 and second interaction rate data followed subsequently by release
data responsive to a second change of states of said first and
second interaction rate data, (ii) attack data responsive to a
sequence of changes of state of said first and second interaction
rate data, (iii) release data responsive to a sequence of changes
of state of said first and second interaction rate data, (iv)
attack data responsive to a count of said interaction rate data,
and (v) release data responsive to a count of said interaction
rate data.

(c) synthesizing continuation data responsive to at least a third
20 interaction gesture, wherein said continuation data is included in
said interaction rate signal,

(d) activating at least one audio signal responsive to said
interaction rate data, whereby said phrase represented by said
interaction rate signal includes said audio signal.

23.) A method of synthesizing a phrase as in claim 22 further
including the step of:

(a) generating third interaction rate data, representing said
third user interaction gesture, operational of said note selection
30 device,

wherein at step (b) said group further includes (iv) a sequence
of attack data responsive to a change of states of said first and
second interaction rate data followed subsequently by release data
responsive to a change of state of said third interaction rate
data, (v) a sequence of attack data responsive to a change of
state of said third interaction rate data, followed subsequently

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by release data responsive to a change of states of said first and second interaction rate data.

24.) A computer readable medium whereon is stored a routine that upon execution by a computer system will perform the following steps:

(a) generating interaction rate data responsive to a plurality of user interaction gestures, and

(b) synthesizing an interaction rate signal including synthesized interaction rate data selected from the group consisting of (i) attack data responsive to a first state of first interaction rate data combined with a first state of second interaction rate data, followed subsequently by release data responsive to a second state of said first interaction rate data combined with a second state of said second interaction rate data, (ii) attack data responsive to a sequence of states of first and second interaction rate data, followed subsequently by release data responsive to a state of third interaction rate data, (iii) attack data responsive to a state of first interaction rate data, followed subsequently by release data responsive to a sequence of states of second and third interaction rate data, (iv) attack data responsive to at least one state of first and second interaction rate data, followed subsequently by release data responsive to a sequence of states of said interaction rate data, (v) attack data responsive to a sequence of states of said interaction rate data, followed subsequently by release data responsive to at least one state of said first and second interaction rate data, and (vi) attack data responsive to a state of first interaction rate data combined with release data, followed subsequently by release data responsive to a state of second interaction rate data combined with said attack data.

25.) The medium of claim 24 whereon is further stored a routine that upon execution by a computer system will at step (b) further perform at least one step selected from the group consisting of (i) synthesizing continuation data responsive to said attack data

and at least one generated said interaction rate data wherein said interaction rate signal further includes said continuation data, (ii) synthesizing damping data responsive to said release data and at least one generated said interaction rate data, wherein said interaction rate signal further includes said damping data, and (iii) synthesizing decay data,

26.) A computer readable medium whereon is stored a routine that upon execution by a computer system will perform the following steps:

(a) generating first and second interaction rate data representing first and second user interaction gestures operational of at least one user interaction device,

(b) synthesizing an interaction rate signal representing a phrase, said interaction rate signal including interaction rate data selected from the group consisting of (i) attack data responsive to a first change of states of said first and second interaction rate data and subsequent release data responsive to a second change of states of said first and second interaction rate data, (ii) attack data responsive to a sequence of changes of state of said first and second interaction rate data, and (iii) release data responsive to a sequence of changes of state of said first and second interaction rate data,

(c) generating at least one control rate signal responsive to said interaction rate signal, said control rate signal having a rate of change variable responsive to at least one parameter selected from the group consisting of (i) position value of a note selection, (ii) interval value of a sequential note selection, (iii) position value of a control operator, and (iv) velocity of a control operator.

(d) activating at least one audio signal responsive to said interaction rate signal, whereby said audio signal is variable responsive to said control rate signal,

wherein said phrase represented by said interaction rate signal includes said audio signal.

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27.) A computer readable medium as in claim 26 whereon is further stored a routine that upon execution by a computer system will perform the following steps;

(a) generating third interaction rate data representing a user interaction gesture operational of a second user interaction device,

whereon at step (b), said group further includes (iv) attack data responsive to a change of state of at least one of said first and second interaction rate data and subsequent release data responsive to a change of state of said third interaction rate data, and (v) attack data responsive to a change of state of said third interaction rate data, and subsequent release data responsive to a change of sate of at least one of said first and second interaction rate data.

28.) An interactive performance interface for use with an electronic audio system, that generates at least one audio signal, said interactive performance interface coupleable to a plurality of user-input control devices, and including at least one performance mode, the interactive performance interface comprising;

at least first and second input circuits to generate at least first and second interaction rate data responsive to user operation of first and second user-input control devices,

at least a first interactive control envelope circuit that synthesizes an interaction rate signal representative of a phrase at least initiated by said audio signal,

said first interactive control envelope circuit including at least a first attack latch that synthesizes interaction rate data selected from the group consisting of (i) attack data responsive to a first combination of states of said first and second interaction rate data, and subsequent release data responsive to a second combination of states of said first and second interaction rate data, (ii) attack data responsive to a first state of said interaction rate data followed by a second state of said interaction rate data, and (iii) release data responsive to a

first state of said interaction rate data, followed by a second state of said interaction rate data,

  wherein said synthesized interaction rate data is included in said interaction rate signal,

  whereby said phrase is responsive to and modifiable by at least one of said plurality of said coupleable user-input control devices.

29.) An interactive performance interface as in claim 28 wherein said first interactive control envelope circuit further includes at least one of (i) a continuation latch that synthesizes continuation data included in said interaction rate signal, responsive in part to synthesized said interaction rate data, (ii) a damp latch that synthesizes damping data included in said interaction rate signal, responsive in part to synthesized said interaction rate data, and (iii) a decay latch that synthesizes decay data included in said interaction rate signal, responsive in part to synthesized said interaction rate data.

30.) An interactive performance interface as in claim 28, wherein said interactive performance interface is embodied in at least one device selected from the group consisting of (i) a stand-alone musical instrument, (ii) a stand-alone electro-mechanical device,

  whereby said device may be operated to activate signal generation functions of an audio system.